WHAT IS CLAIMED IS:

1. A biodegradable block copolymer of the following formula (I):

$$R_1 = \left(O - CH_2 - C\right) \frac{1}{\chi} \left(O - CH - C\right) \frac{1}{\chi} \left(O - CH_2 - CH_2\right) - CH_2 - CH_2\right) - CH_3$$
(I);

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wherein R_1 is hydrogen, or $-C(=O)-R_2$; R_2 is C_{7-30} alkyl substituted or unsubstituted with functional groups; R_3 is hydrogen, or C_{1-6} alkyl; and x, y or z individually is an integer greater than 0.

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- 2. The polymer of claim 1, wherein said R₁ is selected from the group consisting of cholic acid, fatty acid, folic acid and cholesterol.
- 3. The polymer of claim 1, wherein said R_2 is:

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4. The polymer as claimed in claim 1, wherein said R_3 is methyl.

- 5. The polymer as claimed in claim 1, wherein said R_2 is hydrogen, and said polymer is applied for drug releasing or embolic agents.
- 6. The polymer as claimed in claim 1, wherein the molecular weight of the hydrophobic block:

ranges from 1000 to 6000.

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7. The polymer as claimed in claim 1, wherein the molecular weight of said hydrophilic block:

$$-\left(O-CH_2-CH_2\right)_{2}OR_3$$

ranges from 200 to 5000.

- 8. The polymer as claimed in claim 2, wherein x: y: z is 3-18:11-66:4-114.
- 15 9. The polymer as claimed in claim 1, wherein said polymer is thermo-sensitive polymer having an LCST ranging from 15 °C to 30 °C.
 - 10. The polymer as claimed in claim 1, wherein said polymer is functioned as an embolic agent.